# Discussion of "A general equilibrium exploration of Minsky's financial instability hypothesis" by Battacharya, Goodhart, Tsomocos and Vardoulakis

Bart Taub
Durham University

HSE November 2012

# Minsky's hypothesis

Minsky (1992) hypothesized that as optimism grows, banks invest in riskier assets, magnifying the losses when bad states are realized and default occurs.

The authors develop a model in which optimism can grow over time as the economy slowly learns about the true underlying parameters of the economy (viz. the fixed but unknown probability of good outcomes). Investment is funded by debt, and there is default in bad realized states. The authors argue that there is Minsky-style overinvestment that results in deadweight losses from default.

# A different perspective

All investment in the model is funded by debt.

Modigliani-Miller tells us that the method of funding of activities is irrelevant in a frictionless world.

The model has a friction: the deadweight cost from default. What happens if we set it to zero?

# A philosophical comment

There is an anti-risk tone in the paper (and in the media in general these days)

Risk can be good, because it goes with high returns. We don't necessarily want to stomp out risk-taking as a default policy stance. Policy makers don't know the optimum level of risk.

# Literature on learning

There is an old literature on one-armed bandit problem that has an identical learning structure: Rothschild (JET 1974) would be the main economics paper to cite

# Before I go on, a technical suggestion

The stochastic "action" in the model stems from learning via Bayesian updating about the true underlying parameter $\theta$, the true probability of the good state.

True states are contemporaneously observed, but $\theta$ is not, so there is learning. The horizon is finite, so complete learning cannot occur. Thus, the model would not work mechanically in an infinite horizon because complete learning would take place.

The suggestion: by modeling $\theta$ as having two unobserved states with a Markov transition, you could still have nontrivial learning and and an infinite horizon. (This is called a Hidden Markov Model.)

# An observation

Because the realized state is observable, the learning process is entirely exogenous, and is *not* affected by investment—that is, if there is overinvestment in risky assets followed by a crash, the crash itself does not in any way affect Bayesian updating

Therefore the persistence in the model is entirely exogenous

# Mechanical properties

The interest rate is completely driven by exogenous payoff parameters:

$$R = \frac{X_u^H X_d^L - X_d^H X_u^L}{X_u^H - X_d^H - (X_u^L - X_d^L)} \tag{9}$$

Presumably this is driven by the assumption that there is no saving by risk-averse consumers

Notice that if the low-risk investment is riskless ($X_u^L = X_d^L$) then

$$R = X^L$$

# Policy implications

- If there is a deadweight loss from default:
  - allow equity financing
  - do not subsidize debt financing via the tax system (as now happens—but this is not in the model)